

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte ARTHUR P. FRAAS, RICHARD L. FURGERSON,  
and HAROLD L. FALKENBERRY

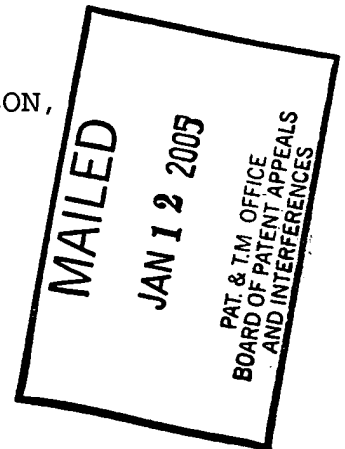
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Appeal No. 2005-0035  
Application No. 08/835,419

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ON BRIEF

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Before GARRIS, WARREN, and TIMM, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1-4, 6-14 and 16-23<sup>1</sup> which are all of the claims pending in this application.

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<sup>1</sup>Certain of the appealed claims appear to contain informalities which, upon verification, should be rectified. As reproduced in the appendix of the appellants' brief: in the penultimate line of claim 1, "the input" lacks strict antecedent basis and therefore should read --an input--; on line 6 of claim 11, a comma should be inserted between "pyrolysis" and "vibrating"; and in the first line of claims 14 and 16, "apparatus" is inappropriate and should read --process--.

The subject matter on appeal relates to an apparatus and to a process for pretreating coal before subjecting the coal to pyrolysis. The pretreatment involves preheating the coal to a temperature below the coal pyrolysis temperature and removing oxygen released from the heated coal prior to pyrolysis. Additional details of this appealed subject matter are set forth in representative independent apparatus claim 1 and representative independent process claim 11 which read as follows:

1. A coal pyrolysis pretreatment apparatus comprising a pretreatment vessel for holding a bed of coal particles, a preheater for heating the bed of coal particles to a temperature below the coal pyrolysis temperature range, an enclosure around the vessel for preventing air from contacting the bed of coal particles, an oxygen remover for removing the oxygen released from the heated coal particles and transporting it away from the enclosure so that the partial pressure of oxygen in the pretreatment region is kept low, and a vibrating machine connected to the vessel for vibrating the vessel and providing rapid mixing and heating of coal particles entering the bed from the input to provide uniform removal of oxygen from coal particles.

11. A coal pyrolysis pretreatment process comprising heating a bed of coal particles in a vessel to a temperature below the coal pyrolysis temperature range, preventing air from contacting the bed of coal particles, and removing oxygen released from the heated coal particles from the enclosure before subjecting the coal to pyrolysis vibrating the vessel and providing rapid mixing and heating of coal particles entering the bed from an input to provide uniform removal of oxygen from coal particles.

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The references set forth below are relied upon by the examiner as evidence of obviousness:

Selep et al. (Selep)	4,397,657	Aug. 9, 1983
Bridle et al. (Bridle)	4,781,796	Nov. 1, 1988
Piotter	4,931,171	Jun. 5, 1990
Dospoy et al. (Dospoy)	5,743,924	Apr. 28, 1998
Potter et al. (Potter)	6,112,675	Sep. 5, 2000

The issues before us on this appeal are raised by the following rejections.<sup>2</sup>

Claims 1-4, 6, 9,<sup>3</sup> 11-14, 16, 19, 22 and 23 stand rejected

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<sup>2</sup>In their brief, the appellants argue that the examiner has inappropriately reopened prosecution of this application (see pages 8-10 of the brief) and requests that the Board "allow this case to issue" (brief, page 10). The Board of Patent Appeals and Interferences is not the appropriate forum in which to seek review of whether an examiner acted properly in reopening prosecution of an application. This is because such an issue is reviewable by way of petition. See The Manual of Patent Examining Procedure (MPEP) § 1214.07 (August 2001) in comparison with Chapter 1000 generally and Sections 1002-1002.02 (c) specifically (Revision 2, May 2004). Therefore, we will not consider or further comment upon the argument and request concerning this issue made by the appellants on pages 8-10 of their brief.

<sup>3</sup>We observe that the examiner has inadvertently failed to include claim 9 in the rejection based on Selep in view of Dospoy (see page 3 of the brief in comparison with page 2 of the final Office action mailed March 17, 2003). This inadvertent error by the examiner has not prejudiced the administrative due process rights of the appellants since they are well aware that this rejection includes claim 9 as reflected by the listing of issues on page 8 of the brief and since they have separately addressed the features of claim 9 on page 16 of the brief. As a consequence, we consider the examiner's aforementioned error to be harmless.

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under 35 U.S.C. § 103 as being unpatentable over Selep in view of Dospoy.

Additionally, under 35 U.S.C. § 103(a): claims 7 and 17 stand rejected as being unpatentable over Selep in view of Potter; claims 8 and 18 stand rejected as being unpatentable over Selep in view of Bridle; and claims 10, 20 and 21 stand rejected as being unpatentable over Selep in view of Piotter.

On page 8 of the brief, the appellants state that "[t]he claims do not stand or fall together." Accordingly, we will separately consider the appealed claims to the extent that they have been separately argued by the appellants. See 37 CFR § 1.192(c)(7)(2003), currently 37 CFR § 41.37(c)(vii) (September 2004).

We refer to the brief and to the answer for a complete exposition of the opposing viewpoints expressed by the appellants and by the examiner concerning the above noted rejections.

#### OPINION

For the reasons set forth below, we will sustain the examiner's Section 103 rejection based on Selep in view of Dospoy but will not sustain any of the other Section 103 rejections advanced on this appeal.

THE REJECTION BASED ON SELEP IN VIEW OF DOSPOY

Selep discloses an apparatus and a process for feeding coal particles into a pressurized gasification reactor or kiln in such a way as to prevent air in the ambient atmosphere from flowing into the apparatus and to prevent gases in the reactor from flowing into the feed apparatus. The feed apparatus includes first and second gas locks and means for injecting nitrogen, steam and a buffer gas, such as clean product gas from the gasification reactor, into the apparatus. A pivotal issue on this appeal is whether patentee's apparatus and process necessarily would preheat the coal particles (e.g., via the steam or clean product gas which are injected into the apparatus and thus contacting the coal particles therein) and would remove oxygen released from the so-heated coal particles (i.e., via conduit 51 of patentee's apparatus) as required by the appellants' independent apparatus claim 1 and independent process claim 11.

For the reasons fully detailed in our decision on related prior appeal no. 1999-2120, a reasonable basis exists for believing that the apparatus and process of Selep would inherently and necessarily preheat the coal particles and remove

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oxygen therefrom. See Ex parte Levy, 17 USPQ2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990). More specifically, this belief is supported by the fact that the apparatus elements and process steps which achieve the coal preheating and oxygen removing goals recited in the appellants' aforementioned independent claims are also present in the apparatus and process of Selep. For example, it is seemingly irrefutable that coal particles passing through patentee's feed apparatus of necessity would become heated when contacted with a hot gas such as the steam or product gas injected into the apparatus. Similarly, it is reasonable to conclude that oxygen would be released from the so-heated coal particles in Selep's apparatus and process since it is by virtue of such heating that oxygen is released from the coal particles in appellants' apparatus and process. It is here appropriate to emphasize that the appealed claims under review do not require any particular degree of coal heating or any particular amount of released oxygen. Thus, even a modest amount of coal heating and oxygen release in Selep's apparatus and process would satisfy these aspects of independent claims 1 and 11.

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Under the circumstances recounted above, it is appropriate to require the appellants to prove that patentee's apparatus and process do not necessarily or inherently achieve the coal heating and oxygen releasing goals recited in claims 1 and 11. The fairness of so allocating the burden of proof is evidenced by the inability of the Patent and Trademark Office to obtain and compare the apparatus and process of Selep with the apparatus and process claimed by appellants. See In re Best, 562 F.2d 1252, 1255-56, 195 USPQ 430, 433-34 (CCPA 1977).

On the record before us, our foregoing determinations are adequately supported with respect to process claim 11. These determinations are even more supported with respect to apparatus claim 1. This is because such a claim is met by prior art apparatus which is capable of performing the functions recited in the claim without regard to the intended use disclosed for the apparatus. See In re Schreiber, 128 F.3d 1473, 1478, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997); In re Yanush, 477 F.2d 958, 959, 177 USPQ 705, 706 (CCPA 1973); and In re Glass, 474 F.2d 1015, 1019, 176 USPQ 529, 532 (CCPA 1973). In this regard, we point out that the steam injection port 64 of Selep (e.g., see figure 1 and lines 66-68 in column 5) plainly would be capable of passing

steam in an amount and temperature such that the coal heating and oxygen releasing functions recited in the apparatus claim would be performed. Again, it is proper that the appellants carry the burden of showing that Selep's apparatus does not inherently possess the functionally defined limitations of the here claimed apparatus. See Schreiber, 128 F.3d at 1478, 44 USPQ2d at 1432.

The appellants repeatedly argue that the rejection of the claims under consideration is improper because Selep does not teach preheating his coal to thereby remove oxygen from it. However, the absence of such an express teaching from the Selep patent does not, without more, require a determination that the rejection is improper. Under principles of inherency, prior art which does not expressly disclose claim limitations nevertheless will satisfy such limitations if the prior art necessarily functions in accordance with or includes those limitations. See EMI Group North Am., Inc. v. Cypress Semiconductor Corp., 268 F.3d 1342, 1349-51, 60 USPQ2d 1423, 1428-30 (Fed. Cir. 2001) and Atlas Powder Co. v. IRECO Inc., 190 F.3d 1342, 1347, 51 USPQ2d, 1943, 1946-47 (Fed. Cir. 1999). It is important to appreciate that inherency is not necessarily coterminous with knowledge of those having ordinary skill in the art since artisans may not



recognize inherent characteristics or functions of the prior art.

Id.

In essence, therefore, the appellants' above noted argument simply is not germane to the inherency issue raised by this appeal as well as by the earlier mentioned prior appeal (i.e., appeal no. 1999-2120). Furthermore, it is significant that the appellants have not provided the record of this appeal with any probative evidence whatsoever concerning the issue of inherency notwithstanding our explanation of the necessity for such evidence in the prior appeal decision. We are constrained by these circumstances to find that the only apparent distinction of appealed independent claims 1 and 11 relative to Selep concerns the vibrating machine and vibrating step requirements of these claims.

Regarding this claim distinction, the examiner expresses his obviousness rationale and conclusion on page 4 of the answer as follows:

Though Selep is silent to providing a vibrating machine connected to the vessel of coal particles, Selep recognizes that a "suitable delivery device" (col. 2, lines 62-66) can be used to feed the coal.

Dospoy et al. disclose a coal vessel (10) and disclose wherein the vessel is connected to a vibrating machine (14)

which also corresponds to a coal feeding means (col. 2, lines 45-57). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the vibrating feeding means of Dospoy et al. as the feeding means in the apparatus of Selep as it is merely the selection of a coal feeding means known to feed to a gas-swept chamber (col. 2, lines 47-50) and since Selep recognizes that a "suitable delivery device" (col. 2, lines 62-66) can be used to feed the coal. Additionally, one of ordinary skill in the art would have a reasonable expectation of success as well as have an ability to recognize the inherent advantages that a vibrating feeder would provide to a device requiring a coal feed.

According to the appellants, the Selep and Dospoy references contain no teaching or suggestion for combining them in the above proposed manner. We cannot agree. The cumulative teachings of these references would have led an artisan to consider the vibrating feeder of Dospoy as eminently suitable for effecting transfer of coal from, for example, a coal bunker (e.g., see element 10 of patentee's drawing) into the feed apparatus of Selep. Further, the artisan's expectation of success would have been reinforced by Selep's teaching that the inlet opening 26 of his feed apparatus is operable to receive particles of coal from a weigh feeder or "other suitable delivery device" (column 2, lines 65-66).

As a consequence of our foregoing analysis, we ultimately determine that the examiner has established a prima facie case of

unpatentability for independent claims 1 and 11 based on the Selep and Dospoy reference evidence which the appellants have failed to successfully rebut with argument or evidence of patentability. It follows that we will sustain the examiner's Section 103 rejection of these independent claims as being unpatentable over Selep in view of Dospoy. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We reach a corresponding conclusion regarding the dependent claims on appeal.

Notwithstanding the appellants' unembellished viewpoint to the contrary (see pages 15 and 18 of the brief), Selep expressly teaches the inlet/inputting features of claims 2 and 12 (e.g., see patentee's element 26 in figure 1 and the disclosure relating thereto) as well as the retort features of claims 3 and 13 (e.g., see patentee's element 12 in figure 1 and the disclosure relating thereto). As earlier explained, the coal heating and oxygen removing features of independent claims 1 and 11 would be inherently practiced by the apparatus and process of Selep, and analogously the moisture removing features of claims 4 and 14 likewise would be inherently practiced. This last mentioned determination is not forestalled by the fact that an oxygen-free

gas such as steam may be injected into patentee's apparatus via port 64 (e.g., see lines 25-26 in column 4) as urged by the appellants (see pages 16 and 18 of the brief). This is because the Selep patent contains no disclosure that the steam ever condenses on the coal particles and because the proximity of port 64 to exhaust conduits 51, 57 would cause the steam injected into the apparatus to be quickly removed therefrom. The sweep gas input and outlet features of claims 6 and 16 are met, for example, by conduits 46 and 51 respectively (see figure 1 and the corresponding specification disclosure of Selep). The carbon monoxide features of claims 9 and 19 are satisfied by Selep's product gas which contains carbon monoxide as explained in the decision on the prior appeal. Finally, the features of claims 22 and 23 correspond to earlier discussed features and are satisfied by Selep for reasons previously explained.

In summary, because the examiner has carried his initial burden of establishing a prima facie case of unpatentability and because the appellants have not successfully carried their

rebuttal burden, we hereby sustain the examiner's Section 103 rejection of claim 1-4, 6, 9, 11-14, 16, 19, 22 and 23 as being unpatentable over Selep in view of Dospoy.

THE REJECTION BASED ON SELEP IN VIEW OF POTTER

On page 5 of the answer, the examiner sets forth the following exposition in support of this rejection:

Selep does not teach injecting the flue gas back into the apparatus.

Potter et al. teaches a similar apparatus and process of carbonaceous material treatment wherein low oxygen content flue gas is used as a sweep gas and inhibits combustion (col. 3, lines 30-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Potter et al. to the apparatus and process of Selep in order to make use of a product (flue gas) generated by Selep and to create an efficient apparatus and process.

The examiner's aforequoted rationale is faulty. While it is true that Potter teaches "a low oxygen content flue gas . . . to suppress or inhibit combustion of the volatilized organics" (column 3, lines 33-34), this teaching would not have motivated an artisan to supply low oxygen flue gas to the coal of Selep's feed apparatus as proposed by the examiner and as required by rejected claims 7 and 17. This is because Selep does not disclose that his feed apparatus contains any volatilized

organics. Therefore, Potter's reason for using a low oxygen content flue gas (i.e., "to suppress or inhibit combustion of the volatilized organics"; id.) is simply inapplicable to the apparatus and process of Selep.

For these reasons, we cannot sustain the examiner's Section 103 rejection of claims 7 and 17 as being unpatentable over Selep in view of Potter.

THE REJECTION BASED ON SELEP IN VIEW OF BRIDLE

The examiner's obviousness position concerning this rejection is expressed on pages 6 and 7 of the answer and is reproduced below:

Selep is silent to providing the non-condensable combustible gases to partially burn the gases and supply them to the bed of coal particles to serve as a sweep gas.

Bridle et al. discloses a furnace for organic matter and teaches wherein resulting non-combustible gases can be recycled to a heating zone and furnace (to burn) and operate as sweep/purge gases (col. 8, lines 54-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bridle et al. to the apparatus and process of Selep in order to make use of a product generated by Selep and to create an efficient apparatus and process.

The examiner's rationale is deficient. Contrary to the implication created by the examiner and contrary to the requirements of the here rejected claims, Bridle does not teach

using a partially combusted non-condensable gas as a sweep gas. Instead, patentee teaches that "non-condensable gases . . . can be recycled as required to the conveyer and heating zone to act as purge and seal gases" (lines 54-57, column 8). While this teaching may have suggested using non-condensable gases as a sweep or purge gas, it certainly contains no suggestion for using partially combusted non-condensable gases as a sweep gas in accordance with the rejected claims. Bridle additionally teaches that "[t]he combustible non-condensable gases can be used in the operation of the furnace . . . to render the process as autogenic as possible" (lines 57-60, column 8). While this teaching may have suggested combusting non-condensable gases in a furnace so as to extract the heat value of these gases, it certainly contains no suggestion for partially combusting these gases and then using the resulting partially combusted product as a sweep gas.

Thus, inspection of the Bridle teaching cited and relied upon by the examiner clearly reveals that this teaching in fact contains no suggestion for the claim features under consideration and accordingly does not support the examiner's obviousness conclusion. We are compelled by these circumstances to believe

that this obviousness conclusion is based upon impermissible hindsight derived from the teachings of the appellants rather than the teachings of the applied prior art. W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

It follows that we also cannot sustain the examiner's Section 103 rejection of claims 8 and 18 as being unpatentable over Selep in view of Bridle.

THE REJECTION BASED ON SELEP IN VIEW OF PIOTTER

According to the examiner, "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to select the heating technique of circulating ceramic balls, as taught by Piotter in the apparatus and process of Selep as it is merely the selection of a solid carbonaceous heating method and means known to be effective in the art and one of ordinary skill would have a reasonable expectation of success as well as have an ability to recognize the inherent advantages that a circulating ceramic balls heating technique would provide to a device" (answer, page 8). This conclusion of obviousness is not well taken. Simply stated, because Selep does not expressly teach that a heating function is performed by or desirable in his



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apparatus or process, an artisan would not have been motivated to provide this apparatus or process with the ceramic balls heating technique of Piotter.

While we have previously determined that Selep's apparatus and process would inherently perform a heating function, proper patentability analysis requires an appreciation that inherency and obviousness are distinct concepts. Garlock, 721 F.2d at 1553-54, 220 USPQ at 314. The well established principle that inherency and obviousness are entirely different questions is based (at least in part) on a straightforward proposition. Namely, that which may be inherent is not necessarily known, and obviousness cannot be predicated on what is unknown. See In re

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Shetty, 566 F.2d 81, 86, 195 USPQ 753, 757 (CCPA 1977) citing In re Spormann, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966).

For these reasons, a retrospective view of inherency cannot serve as a substitute for an actual teaching or suggestion in the prior art. In re Newell, 891 F.2d 899, 901, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989).

In light of the foregoing, we likewise cannot sustain the examiner's Section 103 rejection of claims 10, 20 and 21 as being unpatentable over Selep in view of Piotter.

#### SUMMARY

The decision of the examiner is affirmed in part.

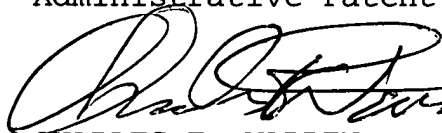
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No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

AFFIRMED-IN-PART



BRADLEY R. GARRIS  
Administrative Patent Judge



CHARLES F. WARREN  
Administrative Patent Judge



CATHERINE TIMM  
Administrative Patent Judge

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